

Application No. 10/530,394

Reply to Office Action

*REMARKS**The Pending Claims*

The pending claims are directed to a method of making a lithographic printing plate precursor. In particular, the method comprises providing a web of a lithographic support having a hydrophilic surface, applying a coating comprising a phenolic resin on the hydrophilic surface of the web, drying the coating, a heating step wherein the web temperature is maintained above 150°C during a period of between 0.1 and 60 seconds, and winding the precursor on a core or cutting the precursor into sheets. Claims 1-11 and 14-34 are currently pending.

*Claim Amendments*

Claims 9 and 26 have been amended to correct a typographical error. Claims 13, 14, and 35-40 have been canceled without prejudice. No new matter has been introduced into the application by way of these amendments.

*Summary of the Office Action*

The Office Action objects to claims 9 and 26 due to a spelling error. The Office Action objects to claim 13 under 37 CFR 1.75(c) as allegedly being of improper dependent form for failing to further limit the subject matter of a previous claim.

The Office Action rejects claims 14 and 38-40 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as his invention.

The Office Action rejects claims 1, 4, 5, 6, 17, and 22 under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent Application Publication 2002/0098288 (Kamitani) ("the Kamitani '288 publication").

The Office Action rejects claims 7, 8, 10, and 23-25 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the Kamitani '288 publication.

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The Office Action rejects claims 3, 16, 19, 21, and 35-37 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the Kamitani '288 publication in view of U.S. Patent 5,380,612 (Kojima et al.)(“the Kojima ‘612 patent”).

The Office Action rejects claims 9 and 26-28 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the Kamitani '288 publication in view of U.S. Patent 6,007,240 (Price)(“the Price ‘240 patent”).

The Office Action rejects claims 2, 12, 30, 32, and 34 as allegedly being unpatentable over the Kamitani '288 publication in view of International Patent Application Publication WO 99/21715 (McCullough et al.)(“the McCullough ‘715 publication”).

Finally, the Office Action rejects claims 11, 15, 18, 20, 29, 31, and 33 over the Kamitani '288 publication in view of the McCullough '517 publication and the Kojima '612 patent.

#### *Discussion of the Claim Objections*

As noted above, the Office Action objects to claims 9 and 26 due to a spelling error. Claims 9 and 26 have been amended to correct the typographical error. Withdrawal of the objection is respectfully requested.

The Office Action also objects to claim 13 under 37 CFR 1.75(c) as allegedly being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 13 has been canceled. Accordingly, the rejection is moot.

#### *Discussion of the Written Description Rejection*

As noted above, the Office Action rejects claims 14 and 38-40 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as his invention. Claims 14 and 38-40 have been canceled. Accordingly, the rejection is moot.

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*Discussion of the Anticipation Rejection*

As noted above, the Office Action rejects claims 1, 4, 5, 6, 17, and 22 under 35 U.S.C. § 102(e) as being anticipated by the Kamitani '288 publication. Applicants respectfully traverse this rejection.

The method of making a lithographic printing plate precursor defined by rejected claims 1, 4, 5, 6, 17, and 22 comprises, *inter alia*, a heating step wherein the web temperature is maintained above 150°C during a period of between 0.1 and 60 seconds.

The Office Action alleges that the Kamitani '288 publication teaches a heating step wherein the web temperature is maintained above 150°C during a period of between 0.1 and 60 seconds, referring to paragraph [0012] and the 3rd example from the bottom of Table 1 of the Kamitani '288 publication. However, the Kamitani '288 publication at Table 1 discloses an inoperable method, wherein a sample of unsatisfactory quality is produced as a result of applying a heating step wherein the web temperature is maintained above 150°C.

Conversely, the present invention recites three examples wherein materials having desirable properties are produced when applying a heating step wherein the web temperature is maintained at or above 150°C (see Tables 1 and 2). Thus, the disclosure of the Kamitani '288 publication would not have placed the public in possession of the invention, and therefore is not an anticipation of the subject matter of the rejected claims. *See In re Coker*, 175 U.S.P.Q. 26, 28-29 (C.C.P.A. 1972) As claims 4, 5, 6, 17, and 22 are directly, or indirectly dependent on, and include all of the limitations of claim 1, the Kamitani '288 publication fails to disclose each and every element of the rejected claims.

Moreover, nothing in the Kamitani '288 publication suggests the desirability of a heating step wherein the web temperature is maintained above 150°C during a period of between 0.1 and 60 seconds. Table 1 of the Kamitani '288 publication discloses an exit surface temperature of 153°C maintained for a heating time of five seconds. However, the Kamitani '288 publication teaches away from applying a heating step using temperatures above 150°C. Indeed, the Kamitani '288 publication, at paragraph [0087], teaches that the developability deteriorated at heating temperatures above 140°C, and the developing was poor at heating temperatures above 145°C. Furthermore, the Kamitani '288 publication, at

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paragraph [0025], teaches that for a thermal type digital direct printing plate and a photopolymer type digital direct printing plate the final temperature of the photosensitive coated layer must be 125 to 145°C and 105 to 130°C, respectively. The Kamitani '288 publication, at paragraph [0026], also teaches that the final temperature reached by the photosensitive coated layer for processless printing plates and lithographic printing plates using a silver salt diffusion transfer method must be controlled to a narrow temperature range in the same way as, or even more so than, thermal type digital direct printing plates and photopolymer type digital direct printing plates. Clearly, the Kamitani '288 publication does not teach a heating step wherein the web temperature is maintained above 150°C during a period of between 0.1 and 60 seconds. In fact, this reference fails to provide any motivation to one skilled in the art to utilize a heating step wherein the web temperature is maintained above 150°C during a period of between 0.1 and 60 seconds. Indeed, this reference would, without doubt, motivate one to not utilize temperatures as claimed—teaching away from the claimed subject matter.

Accordingly, the subject matter of claims 1, 4, 5, 6, 17, and 22 is neither anticipated by nor rendered obvious in view of the Kamitani '288 publication. The anticipation rejection is improper and should be withdrawn.

An obviousness rejection would not be proper in this situation, as the cited publication fails to teach, and indeed teaches away from, the claimed subject matter.

#### *Discussion of the Obviousness Rejections*

As noted above, the Office Action rejects claims 7, 8, 10, and 23-25 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the Kamitani '288 publication. Applicants respectfully traverse this rejection.

Claims 7, 8, 10, and 23-25 are directly or indirectly dependent on, and include all of the limitations of claim 1, which is discussed above with respect to the anticipation rejection.

The obviousness rejection is predicated on the assumption that the Kamitani '288 publication discloses the method of claim 1. This assumption is not correct. Accordingly, and for the reasons set forth above, the Kamitani '288 publication cannot properly be

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considered to motivate one skilled in the art to modify the Kamitani '288 publication's process to provide the subject matter defined by claims 7, 8, 10, and 23-25.

Moreover, claim 8 specifies that during the cooling step the web temperature is reduced at an average cooling rate which is lower than  $10^{\circ}\text{C/s}$ . The Office Action acknowledges that the Kamitani '288 publication fails to disclose the exact cooling rate. The Office Action instead alleges that the Kamitani '288 publication discloses a rapid cooling system and the ability to change the cooling time to meet process needs. The Office Action further alleges that it is an inherent property of polymer processing that cooling too quickly from a temperature above the  $T_g$  to a temperature below the  $T_g$  results in voids and/or other defects in the polymer microstructure.

However, the Kamitani '288 publication at paragraph [0039] discloses an ability to change the cooling time to meet process needs only by decreasing the time it takes to lower the surface temperature of the coated layer, which represents an increase in the average cooling rate rather than a decrease in the rate. Thus, the Kamitani '288 publication fails to disclose the claimed average cooling rate and teaches away from changing the cooling time via a slower average cooling rate.

Further, claim 10 specifies that  $T_1$  is  $T_g+20^{\circ}\text{C}$  and  $T_2$  is  $T_g-20^{\circ}\text{C}$ . Claim 10 is dependent on claim 8, which specifies that the web temperature is reduced from  $T_1$  to  $T_2$ ,  $T_1$  being higher than  $T_g$  and  $T_2$  being lower than  $T_g$ , at an average cooling rate which is lower than  $10^{\circ}\text{C/s}$ . The Office Action alleges that the Kamitani '288 publication teaches  $T_1$  is  $T_g+20^{\circ}\text{C}$  and  $T_2$  is  $T_g-20^{\circ}\text{C}$ .

However, nothing in the Kamitani '288 publication suggests the desirability of a lower cooling rate within the claimed range of temperatures around  $T_g$ . The Kamitani '288 publication, at Tables 1 and 2, merely discloses a broad range of exit surface temperatures subsequent to a heating step. Thus, there is no teaching or suggestion within the Kamitani '288 publication to adopt a particular average cooling rate, after the rapid cooling step has been initiated, at a particular range of temperatures above and below  $T_g$ .

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In view of the foregoing, the invention defined by claims 7, 8, 10, and 23-25 cannot properly be considered obvious over the Kamitani '288 publication. Therefore, Applicants respectfully request withdrawal of the obviousness rejection.

As noted above, the Office Action rejects claims 3, 16, 19, 21, and 35-37 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the Kamitani '288 publication in view of the Kojima '612 patent. Applicants respectfully traverse this rejection.

Claims 3, 16, 19, and 21 are directly or indirectly dependent on, and include all of the limitations of, claim 1, which is discussed above with respect to the anticipation rejection. The obviousness rejection is predicated on the assumption that the Kamitani '288 publication discloses the method of claim 1. This assumption is not correct, as discussed above with respect to the anticipation rejection. Accordingly, the combination of the Kamitani '288 publication and the Kojima '612 patent (the latter not overcoming the deficiencies of the primary reference) cannot properly be considered to disclose or suggest the subject matter defined by claims 7, 8, 10, and 23-25. As claims 35-37 have been canceled, the rejection of these claims is moot.

Moreover, claim 3 specifies that the heating step is carried out by blowing hot air or steam onto the precursor. The Office Action acknowledges that the Kamitani '288 publication fails to disclose a heating step that is carried out by blowing hot air or steam onto the precursor. The Office Action alleges instead that the Kojima '612 patent teaches the equivalence of hot air heaters to infrared heaters.

However, the Kojima '612 patent discloses means to heat a photosensitive printing plate, during the post exposure, which include an arbitrary list of heating means comprising both infrared heaters and hot air heaters (see col. 10, lines 55-58). Nothing in the Kojima '612 patent suggests the equivalence of the heaters. Thus, the Kojima '288 patent would have failed to direct one of ordinary skill in the art to use a hot air heater in place of the heater of the Kamitani '288 publication. Taken together, the Kamitani '288 publication and the Kojima '612 patent fail to teach or suggest a heating step carried out by blowing hot air or steam onto the precursor.

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In view of the foregoing, the invention defined by claims 3, 16, 19, and 21 cannot properly be considered obvious over the Kamitani '288 publication in view of the Kojima '612 patent. Therefore, Applicants respectfully request withdrawal of the obviousness rejection.

As noted above, the Office Action rejects claims 9 and 26-28 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the Kamitani '288 publication in view of the Price '240 patent. Applicants respectfully traverse this rejection.

Claims 9 and 26-28 are directly or indirectly dependent on, and include all of the limitations of, claim 1, which is discussed above with respect to the anticipation rejection. The obviousness rejection is predicated on the assumption that the Kamitani '288 publication discloses the method of claim 1. This assumption is not correct, as discussed above with respect to the anticipation rejection. Accordingly, the combination of the Kamitani '288 publication and the Price '240 patent (the latter not overcoming the deficiencies of the primary reference) cannot properly be considered to disclose or suggest the subject matter defined by claims 9 and 26-28.

Moreover, claims 9, 26, and 27 specify a cooling step wherein the web temperature is reduced in a first phase down to  $T_1$  at an average cooling rate of at least  $10^{\circ}\text{C/s}$ , in a second phase from  $T_1$  to  $T_2$  at an average cooling rate which is lower than  $10^{\circ}\text{C/s}$ , and in a third phase from  $T_2$  to about ambient temperature at an average cooling rate of at least  $10^{\circ}\text{C/s}$ . Claim 28 is dependent on claim 9 and further specifies that  $T_1$  is  $T_g + 20^{\circ}\text{C}$  and  $T_2$  is  $T_g - 20^{\circ}\text{C}$ . The Office Action acknowledges that the Kamitani '288 publication fails to disclose three different phases. The Office Action alleges that it is an inherent property of polymer processing that cooling too quickly from a temperature above the  $T_g$  to a temperature below the  $T_g$  results in voids and/or other defects in the polymer microstructure. The Office Action further alleges that the Price '240 patent teaches that a property of the glass transition region is that polymer relaxation effects are stronger than above or below the transition region.

As noted above, the Kamitani '288 publication only discloses decreasing the time it takes to lower the surface temperature of the coated layer, which represents an increase in the average cooling rate. Additionally, nothing in the Kamitani '288 publication teaches or suggests a cooling step comprising three distinct phases, wherein each phase correlates to

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particular web temperature(s) and cooling rates. The Price '240 patent does not make up for these deficiencies of the Kamitani '288 publication. Further, after the rapid cooling step has been initiated, there is no suggestion within the Kamitani '288 publication to adopt a slower average cooling rate at a particular range of temperatures above and below  $T_g$ .

In view of the foregoing, the invention defined by claims 9 and 26-28 cannot properly be considered obvious over the Kamitani '288 publication in view of the Price '240 patent. Therefore, Applicants respectfully request withdrawal of the obviousness rejection.

As noted above, the Office Action rejects claims 2, 12, 30, 32, and 34 as allegedly being unpatentable over the Kamitani '288 publication in view of the McCullough '715 publication. Applicants respectfully traverse this rejection.

Claims 2, 12, 30, 32, and 34 are directly or indirectly dependent on, and include all of the limitations of claim 1, which is discussed above with respect to the anticipation rejection. The obviousness rejection is predicated on the assumption that the Kamitani '288 publication discloses the method of claim 1. This assumption is not correct, as discussed above with respect to the anticipation rejection. Accordingly, the combination of the Kamitani '288 publication and the McCullough '715 publication (the latter not overcoming the deficiencies of the primary reference) cannot properly be considered to disclose or suggest the subject matter defined by claims 2, 12, 30, 32, and 34.

Moreover, claim 2 comprises a heating step wherein the web temperature is maintained above  $170^{\circ}\text{C}$  during a period of between 0.1 and 60 seconds. The Office Action acknowledges that the Kamitani '288 publication fails to disclose a heating step wherein the web temperature is maintained above  $170^{\circ}\text{C}$  during a period of between 1 and 30 seconds, but alleges that the Kamitani '288 publication suggests the ability to vary the temperature and time conditions in order to achieve desired results. The Office Action also alleges that the McCullough '715 publication teaches the desire and ability to vary, by trial and error, the time and temperature settings to achieve desired sensitivity in the printing plate precursors, and that the precursors should be held for a shorter time when heated to a higher temperature. As discussed above with respect to the anticipation rejection, the Kamitani '288 publication teaches away from the method as claimed. Moreover, the McCullough '715 publication does not disclose a heating step wherein the web temperature is maintained above  $170^{\circ}\text{C}$ . Indeed,



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the McCullough '715 publication discloses phenolic resin compositions formulated for use in lithographic exposure processes [which] may be given a heat treatment at 40-90°C (see abstract). Taken together, the Kamitani '288 publication and the McCullough '715 publication fail to teach or suggest a method wherein, *inter alia*, a heating step wherein the web temperature is maintained above 170°C.

The failure of the Kamitani '288 publication and the McCullough '715 publication to teach or suggest a heating step wherein the web temperature is maintained above 170°C is all the more clear when one considers that the McCullough '715 publication teaches away from a heating step wherein the web temperature is maintained above 170°C. In particular, the McCullough '715 publication discloses a heat treatment, determined by trial and error, which uses a temperature not in excess of 90°C, preferably not in excess of 85°C, most preferably not in excess of 60°C (see page 7, lines 17-27). Accordingly, one of ordinary skill in the art, having been provided with the disclosure of the Kamitani '288 publication, would be led away from a method wherein, *inter alia*, a heating step maintains the web temperature above 170°C irrespective of the disclosure of the McCullough '715 publication.

The Office Action also alleges that the McCullough '715 publication teaches that when printing plate precursors are heated to a higher temperature, the precursors should be held at that temperature for a shorter time. However, the McCullough '715 publication specifically discloses that precursors heated at a lower temperature should be kept at that temperature for a longer time (see page 7, line 34 - page 8, line 1). Moreover, the McCullough '715 publication teaches away from maintaining the temperature of the precursors above 170°C for a period of between 1 and 30 seconds in order to achieve a desired sensitivity. In particular, the McCullough '715 publication discloses that in all cases the heat treatment should be carried out for at least 4 hours, preferably for at least 24 hours, most preferably for at least 48 hours (see page 8, lines 1-4). Accordingly, the subject matter of claim 2 would not be rendered obvious over the Kamitani '288 publication in view of the McCullough '517 publication.

In view of the foregoing, the invention defined by claims 2, 12, 30, 32, and 34 cannot properly be considered obvious over the Kamitani '288 publication in view of the

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McCullough '715 publication. Therefore, Applicants respectfully request withdrawal of the obviousness rejection.

As noted above, the Office Action rejects claims 11, 15, 18, 20, 29, 31, and 33 over the Kamitani '288 publication in view of the McCullough '517 publication and the Kojima '612 patent. Applicants respectfully traverse this rejection.

Claims 11, 15, 18, 20, 29, 31, and 33 are directly or indirectly dependent on, and include all of the limitations of claim 1, which is discussed above with respect to the anticipation rejection. The obviousness rejection is predicated on the assumption that the Kamitani '288 publication discloses the method of claim 1. This assumption is not correct, as discussed above with respect to the anticipation rejection. Accordingly, the combination of the Kamitani '288 publication and the McCullough '715 publication (the latter not overcoming the deficiencies of the primary reference) cannot properly be considered to disclose or suggest the subject matter defined by claims 11, 15, 18, 20, 29, 31, and 33.

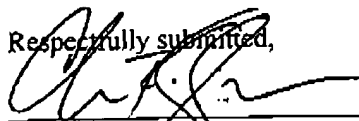
In view of the foregoing, the invention defined by claims 11, 15, 18, 20, 29, 31, and 33 cannot properly be considered obvious over the Kamitani '288 publication in view of the McCullough '715 publication. Therefore, Applicants respectfully request withdrawal of the obviousness rejection.

#### *Conclusion*

As Applicants believe the application is in proper condition for allowance, the Examiner is respectfully requested to pass the application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

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Respectfully submitted,

  
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